APPENDIX II

Report of the
Competitive Communications Group

As a result of the January 25, 1999 Supreme Court ruling, the Federal Communications Commission (FCC) has opened the Second Further Notice of Proposed Rulemaking (FNRPM) to afford the public the opportunity to supplement the record concerning the "necessary" and "impair" standards of Section 251(d)(2) and identify the network elements that are subject to the unbundling requirements of section 251(c)(3).

As part of understanding whether any network element should be included in further Commission rulemaking, the following factors need to be considered:

Availability of substitute capabilities from the ILEC or other sources;
Whether a substitute capability requires requesting carriers to incur higher deployment costs or lower economies of scale compared to those of the required element; and
Practical difficulties in obtaining business arrangements necessary to obtain any substitute capability by requesting carriers.

With respect to these three components, this analysis will focus primarily on understanding the need for maintaining the leased switching unbundled network element (UNE) as one of the network elements to be decided on by the FCC. Specifically, network alternatives, quantifiable dollar costs and operational considerations will all be examined in order to provide input for policy direction for maintaining or eliminating leased switching as an unbundled network element.

Understand and quantify availability of substitute wholesale switching opportunities.

A market research study was performed in New York City to assess the availability of switching alternatives for competitive local exchange carriers (CLECs) by companies other than Bell Atlantic. New York City was chosen because there are, at the time of this writing, twenty CLECs offering dialtone, transport, and colocation services, almost exclusively to business customers. New York City is widely perceived to be the litmus test for success by a competitive local exchange carrier (CLEC). No other single market in the United States has as many CLECs as New York City, which include the largest facilities-based CLECs as well as traditional competitive access providers (CAPs).

While few local market CAPs still exist, they are notable here because their business was borne out of providing wholesale services to other telecommunications carriers, and to the extent any CLEC is positioned to provide wholesale switching services to other CLECs, it is likely to be a company with a background in providing wholesale services.

Of the twenty CLECs in New York City interviewed about their plans for leasing switched services to other CLECs (also referred to as switch partitioning), not one CLEC claims to be both willing and prepared to lease switching on a wholesale basis to other telecommunications providers. CLECs are almost exclusively offering switched services to the retail customer base.

The summary results of the market research study can be seen on Attachment I. One CLEC has several CLEC customers to whom they partition the switch, but due largely to operational support concerns, they do not intend to renew their contract when the term has expired. One CLEC is contemplating leasing its switching platform prior to year end 1999, but was unable to share specific timelines, prices or any level of operations plan. Several CLECs are non-switch based providers (fiber/transport-oriented or resellers), and therefore not able to offer switching. None of the remaining switch-based CLECs are actively or contemplating leasing switched services.

In New York City, it is apparent that leasing switched services from anyone other than Bell Atlantic is not a feasible alternative for a CLEC. Not one of the twenty CLECs interviewed actively solicit other companies for whom to provide switching services. Only one is offering any level of switch partitioning currently, and for that company, partitioning is being phased out.

Can the lack of availability of switch partitioning in New York City translate into a lack of availability of leased switching in other markets? The answer is a qualified yes. This study does not prove that conclusively, however, all companies interviewed in New York City were asked whether they lease switching in other markets. Only one company responded affirmatively, and that is in a single market. Given the fact that the CLECs interviewed collectively sell services in a minimum of 35 metropolitan markets, there is a high degree of likelihood that leased switching is at best minimally available in other markets from CLECs not surveyed as part of the New York City research.

Additionally, anecdotal evidence supports the fact that limited or no wholesale switching arrangements are being offered in any markets. For many CLECs offering services in markets ranging from 2,500 households up through major metropolitan areas, leasing wholesale switched services is simply of secondary importance to companies looking to acquire market share and build a customer base.

Furthermore, the operational complexities associated with developing a wholesale leased switching platform, and the scarce manpower resources available in many markets, make that wholesale platform development risky, and reduce focus from the core competency that CLECs develop.

Quantifying the cost of leased switching versus the cost of switch purchasing.

Clearly, one substitute for leasing switching from the incumbent local exchange carrier (ILEC) is for a CLEC to purchase a switch. A whole host of switching solutions and financing options exist, from the largest switch manufacturers to many smaller modular switch manufacturers. This variety of switching manufacturers and products in many cases permits the CLEC to acquire a switching solution that fits their customer and market needs quite well. If that in fact is the case, should a CLEC be allowed to lease switching from an ILEC?

The answer to this question is yes. Purchasing a switch requires significantly more manpower and other capital and expense resources than simply the cost of purchasing the switch. Once a decision to purchase a switch has been made, the following cost requirements must be met in order to properly provision service to customers:

- the CLEC will require electronics at all end offices in which interconnection is desired;
- vehicles, furniture and other work equipment will be required;
- debt and/or equity will be required to finance the switch and other capital costs, which results in interest and expense and an associated cost of equity capital;
- a minimum of one switch technician is required to maintain and program the switch;
- a minimum of one outside plant technician will be required to be at the ILEC host site at customer conversions;
- the switch requires space, which means rent expense and power requirements;
- training and travel will be required for personnel;
- the CLEC will require interconnection trunks between its switch and the ILEC switch;
- the CLEC will require transport between the CLEC switch and ILEC tandem at tariffed rates; and
- collocation costs must be incurred to assure proper interface with the ILEC.

These are strictly incremental costs that are not incurred should a CLEC lease switching from an ILEC.

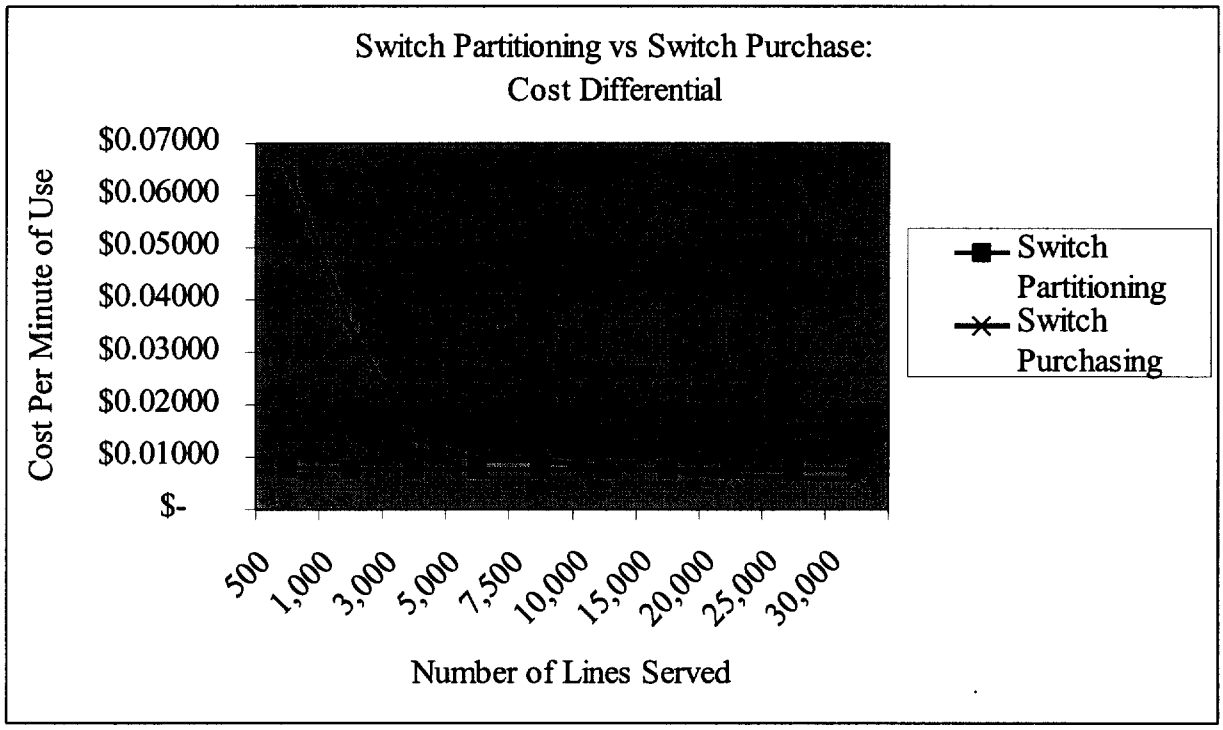
The incremental costs for a CLEC to lease switching from an ILEC are:

- the cost of leasing the port;
- the cost of the actual switching minute and related features;
- the cost of processing and transmitting recorded Minute of Use data; and
- the cost of transport between the ILEC switch and the tandem at unbundled transport rates (which are typically lower than tariffed rates).

These incremental cost differences exclude costs that must be incurred in either scenario, such as leasing loops, network interfaces devices (NIDs), the cost of provisioning and

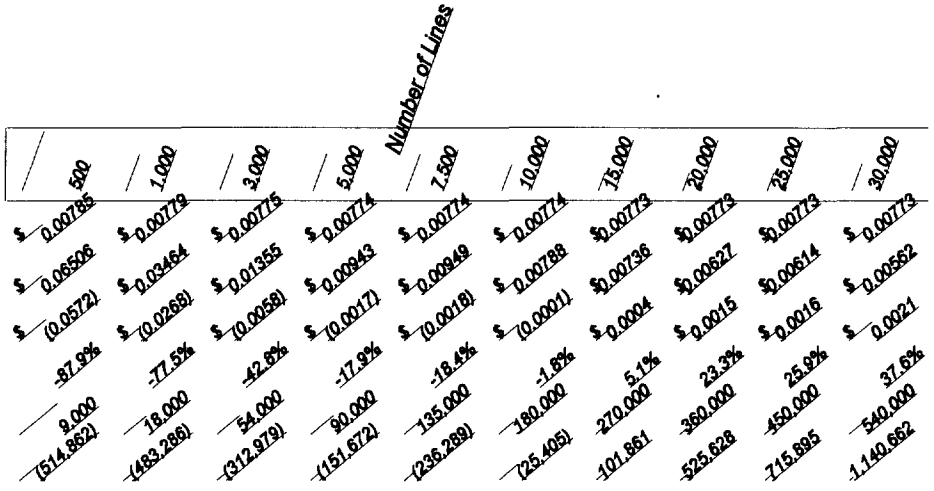
customer service, which are roughly equivalent between methodologies. These costs also exclude delays in getting to a market, given the long length of time to generate additional financing, and subsequently develop specifications, negotiate the switch price, order, install and test the switch. The delays can add a year or more to the process of becoming a facilities-based CLEC for any given market.

As part of this analysis, these costs have been quantified and compared against each other at varying levels of customer lines. Customer lines are the key variable, because many switches have significant capacity, up to 100,000 lines, and a crossover point does exist in which the per minute cost of purchasing a switch becomes less than the per minute cost of leasing a switch. The following graph summarized the cost differential at varying line sizes for a single host switch. The line sizes range from 500 lines to 30,000 lines.



From the graph, it can be seen that the breakeven point between leasing switching and owning a switch is approximately 12,000 lines. If a CLEC serves or plans to serve less than 12,000 lines from a single switch, it is more cost effective to lease switching. The largest cost differentials occur at line sizes of 5,000 and below.

As shown on the chart below, the cost percentage differential rises dramatically when a CLEC serves less than 5,000 lines. The chart also indicates that the actual dollar cost differential between 3,000 and 7,500 lines stays relatively constant, because the reduced cost savings are offset by the increased minute of use volume. The specific costs supporting this chart can be found on Attachment II.



For CLECs that plan to serve smaller markets per switch, or whose large market approach is highly targeted and the likely number of customer lines will be less than 5,000, the cost argument for maintaining leased switching as an unbundled network element is compelling. Even for CLECs in large markets, assuring over 5,000 customer lines per switch can be a difficult task, and one that will likely take two to three years to accomplish.

Clearly, well capitalized, large market CLECs that plan on acquiring significant market share will be better served over the long term by switch ownership. However, for many other smaller CLECs, having the ability to lease switching provides a least cost alternative.

Many CLECs can benefit from leasing switching. How would an FCC decision to include or exclude leased switching impact competition and customers? In any market, regardless of size, a start up CLEC will be able to take advantage of leasing switching to reduce costs. For a CLEC that sells 3,000 lines in a market, having the ability to lease switching reduces that CLEC's cost by over $300,000 annually.

For many smaller CLECs, having 3,000 lines in 10 large markets translates into cost savings of $3,000,000 annually, while still positioning that CLEC to be an effective player in each market.

For smaller markets, the case is even more compelling. In the United States, there are approximately 1,600 stand-alone cities with populations between 10,000 and 100,000 [1]. Of these 1,600, approximately 1,300 have populations below 50,000. The mean number of households for a city of 50,000 population is roughly 20,000, while the mean number of businesses is approximately 2,000. Most of these markets, particularly the 1,300 markets below 50,000 have little or no effective competition. This is in part because switch purchases cannot be cost justified, and total service resale offers no effective opportunity for profitability.

For a typical city of 50,000 population, 2,000 businesses translates into approximately 8,000 total business access lines[2]. A CLEC would require over 60% market share in order to acquire the 5,000 access lines that would minimize the cost differential between a switch purchase and leased switching. CLECs entering a market of 50,000 tend to target 20% - 30% market share. In that case, a CLEC would typically sell to 400 – 600 business customers, or 1,600 – 2,400 access lines, well below the threshold for purchasing a switch.

Identify costs associated with increased operational complexities.

Eventually, switch partitioning by CLECs to other CLECs may become a reality. At that time, switching substitutes may exist that, on a market by market basis, could offer a non-ILEC leased switching alternative. This might appear to reduce the need for maintaining leased switching as an unbundled network, by betting that eventually a non-ILEC switching alternative may exist.

Assuming for a moment that non-ILEC leased switching alternatives did exist, would those alternatives eliminate the need to maintain leased switching an unbundled network element? The answer is no, for the following reasons.

First, it will be many years before enough CLECs are selling wholesale services to all markets in which CLECs will have, or desire, a market presence. Markets such as New York City may have one alternative within 12 – 18 months. It may be ten years before a CLEC in a 25,000 – 50,000 population market would be able offer wholesale switching to another CLEC. In fact, as mentioned, most markets with a population of under 50,000 are not currently served by CLECs, facilities-based or resale.

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[1] Based upon 1990 US Census Data figures

[2] This figure based on an a mean of four access lines per business. Data supplied through independent market research by Competitive Communications Group, Riverdale, MD.

In order to facilitate competition in small markets, leasing all necessary facilities elements, including the NID, loop, switch and transport to the POP will all be required. The absence of the ability to lease any of these elements from the ILEC will continue to limit effective competition.

Second. leasing switching from non-ILEC sources can be extremely complicated for a CLEC. Many of the operational interfaces that are part and parcel of purchasing the switching element from an ILEC must be individually negotiated if partitioning a switch. It is this complexity that has stopped most attempts at switch partitioning. Attachment III provides a summary list of the operational details that must be implemented with each location where partitioned switching would be purchased.

Managing all of these issues contribute to time to market delays as well as economic inefficiencies for the CLEC.

Third, the reality is that each CLEC has its own business plan that is simply not likely to be aligned exactly with the BTAs in which other facilities-based CLECs operate. Therefore, even if a CLEC *could* work through all of the operational issues required to lease switching from all available CLECs, that probably does not align itself well with the geographic rollout strategy of any CLEC that is willing to provide leased switching.

Currently, to lease alternative switching in the 35 BTAs in which facilities-based CLECs sell services, a CLEC would have to negotiate agreements with six different CLECs, since no CLEC is providing local exchange services in all of those markets. This lack of ubiquitous service availability will continue over the long term.

Fourth, risks are inherent for CLECs in collocating or partitioning with other CLECs, especially if the providing CLEC undergoes restructuring. For example, if a provider were to be absorbed by a larger concern, possibly by a company that did not provide wholesale services, a switch partitioning alternative that was recently implemented could be optioned out of the company's future plans. A CLEC leasing switching therefore runs the risk of having to migrate its customer base back to the ILEC over time.

Impact on other Unbundled Network Elements

While the focus of this paper is on the leased switching unbundled network element, it is important to recognize that various unbundled network elements need to work in tandem with each other in order to promote and maintain effective competition. The FCC initially identified seven elements that must be made available in order to promote effective competition. Leased transport is one of those elements, and certainly one that must be maintained in conjunction with leased switching in order to provide a competitive environment.

The argument could me made that while the lack of leased switching alternatives supports the maintenance of leased switching as an unbundled network element, the availability of leased transport options eliminate the necessity of leased transport as an unbundled network element.

That argument is flawed for two reasons. First, the availability of true local transport options, for the purpose of local competition within a market is limited to the downtown business districts within the larger metropolitan communities. Few local transport options exist beyond these dense, core business customer centers. The notion that ubiquitous local transport alternative exist is far from reality.

In most of the 1,600 small markets mentioned previously, the only facilities-based network is the network owned by the ILEC. That represents over 3,000,000 businesses that have no alternative transport available. To maintain local switching as an unbundled network element and disallow transport would continue to minimize the likelihood of effective competition in those markets.

Even the large markets offer limited transport options beyond the core business district. Perhaps a competitive local exchange carrier desires to connect all schools in a local school district with downtown offices (where transport options may exist), in order to link them into a single voice and data network, provide dedicated high speed internet access and a system-wide voice mail application. There are almost certainly no dedicated transport alternatives other than the ILEC for most of the school locations beyond downtown. In this case, should a CLEC lease switching from the incumbent, they would also require leased local transport from the ILEC in order to provide the schools with the particular service platform. This is true not only for schools, but for other multi location businesses as well, such as banks, government agencies and insurance companies.

The second reason that argument is flawed is that should the ILEC no longer be required to provide interoffice transport, it is possible that some portions of that transport may not be made available to the CLEC that is leasing switching, making termination to all end users difficult. For example, a CLEC will lease switching out of a local ILEC end office, and require transport back to the ILEC tandem. Should the ILEC not provide transport to the CLEC, the CLEC would require alternative transport arrangements. Other competitors that

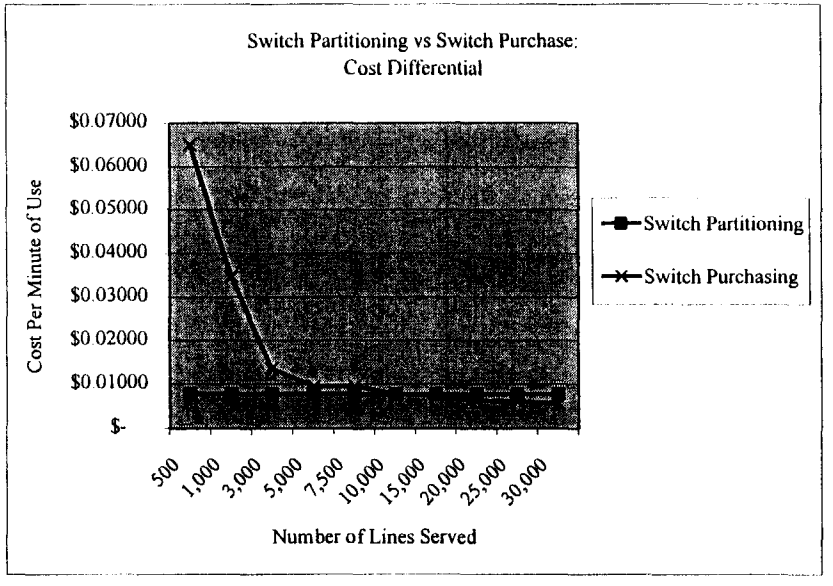
possess switching and transport facilities may be able to recognize an unfair competitive advantage by not leasing critical transport components. This could render the practical outcome of requiring leased switching somewhat irrelevant, because without effective transport options, leasing switched minutes has little benefit, either to the CLEC or the customer.

Attachment I. Availability of Switch Partitioning as an Option

COMPANY	Switch Partitionin	Notes
Bell Atlantic (ILEC)	Yes	Partitioning, provided that space exists. Full collocation, provided th space once again is available.
Specialty Provider	No	Collocates strictly on the data side. Caters primarily to ISP markets.
Specialty Provider	No	Provides transport capabilities only. Not a switch provider.
CLEC Provider	No	No partitioning.
CLEC Provider	No	No partitioning.
CLEC Provider	No	No partitioning. Third party transactions confined to agents.
CLEC Provider	Not in Manhattan	No partitioning in NYC. Has one switch partitioned in another state, i a much smaller market.
CLEC Provider	No	No partitioning. Offers collocation services only.
CLEC Provider	Not yet	No current partitioning. In testing, may have a switch partitioning offering by the end of 1999. Currently can collocate in all 25 Tier 1 markets.
CLEC Provider	No	No partitioning.
CLEC Provider	No	No partitioning.
CLEC Provider	No	No partitioning. Collocation available with minimum $10K in switchbound services.
CLEC Provider	No	No partitioning.
CLEC Provider	No	No partitioning.
CLEC Provider	No	No partitioning.
CLEC Provider	No	No partitioning.
CLEC Provider	No	No partitioning. Agent program only.
CLEC Provider	No	Switch partitioning no longer available, will let current contracts expire.
Wireless CLEC Provider	No	No partitioning.
Wireless CLEC Provider	No	No partitioning. Will resell wireless.

Attachment II
Switch Partitioning vs Switch Purchase:
Summary of Cost Differential
Per Minute of Use and Total Cost

	Number of Lines									
	500	1,000	3,000	5,000	7,500	10,000	15,000	20,000	25,000	30,000
Switch Partitioning	$ 0.00785	$ 0.00779	$ 0.00775	$ 0.00774	$ 0.00774	$ 0.00774	$ 0.00773	$ 0.00773	$ 0.00773	$ 0.00773
Switch Purchasing	$ 0.06506	$ 0.03464	$ 0.01355	$ 0.00943	$ 0.00949	$ 0.00788	$ 0.00736	$ 0.00627	$ 0.00614	$ 0.00562
Minute of Use Differential	$ (0.05721)	$ (0.02685)	$ (0.00580)	$ (0.00169)	$ (0.00175)	$ (0.00014)	$ 0.00038	$ 0.00146	$ 0.00159	$ 0.00211
Percent Differential	-87.9%	-77.5%	-42.8%	-17.9%	-18.4%	-1.8%	5.1%	23.3%	25.9%	37.6%
Total Annual Minutes (000s)	9,000	18,000	54,000	90,000	135,000	180,000	270,000	360,000	450,000	540,000
Total Annual Cost Differential	(514,862)	(483,286)	(312,979)	(151,672)	(236,289)	(25,405)	101,861	525,628	715,895	1,140,662



Attachment II
Breakdown of Costs Required for Switch Partitioning

	Number of Lines									
	500	1,000	3,000	5,000	7,500	10,000	15,000	20,000	25,000	30,000
Switchman (1 to 5)	-	-	-	-	-	-	-	-	-	-
Training	-	-	-	-	-	-	-	-	-	-
Travel, Other	-	-	-	-	-	-	-	-	-	-
Repairs		-	-	-	-	-	-	-	-	-
Switching Expense										
Port Charges	$ 15,678	$ 31,356	$ 94,068	$ 156,780	$ 235,170	$ 313,560	$ 470,340	$ 627,120	$ 783,900	$ 940,680
Switching Charges	$ 38,869	$ 76,677	$ 227,908	$ 379,140	$ 568,179	$ 757,219	$ 1,135,297	$ 1,513,376	$ 1,891,455	$ 2,269,534
Recording Charges	$ 12,761	$ 25,522	$ 76,565	$ 127,608	$ 191,412	$ 255,216	$ 382,824	$ 510,432	$ 638,040	$ 765,648
Depreciation Expense	-	-	-	-	-	-	-	-	-	-
Property Tax	-	-	-	-	-	-	-	-	-	-
Subtotal Direct Expenses	67,308	133,554	398,541	663,528	994,761	1,325,995	1,988,461	2,650,928	3,313,395	3,975,862
Local Interoffice Trunking	-	-	-	-	-	-	-	-	-	-
Transport to Tandem	3,330	6,660	19,980	33,300	49,950	66,600	99,900	133,200	166,500	199,800
TOTAL INCREMENTAL EXPENSE	70,638	140,214	418,521	696,828	1,044,711	1,392,595	2,088,361	2,784,128	3,479,895	4,175,662
ANNUAL MINUTES	9,000,000	18,000,000	54,000,000	90,000,000	135,000,000	180,000,000	270,000,000	360,000,000	450,000,000	540,000,000
EXPENSE/MINUTE	$ 0.007849	$ 0.007790	$ 0.007750	$ 0.007743	$ 0.007739	$ 0.007737	$ 0.007735	$ 0.007734	$ 0.007733	$ 0.007733

Breakdown of Costs Required for Switch Purchasing Utilizing Physical Collocation

	Number of Lines									
	500	1,000	3,000	5,000	7,500	10,000	15,000	20,000	25,000	30,000
Number of Collocated Central Offices	1	1	1	1	2	2	3	3	4	4
Switch	350,000	450,000	600,000	1,000,000	1,250,000	1,500,000	2,000,000	2,500,000	3,000,000	3,500,000
Electronics	325,000	325,000	325,000	325,000	650,000	650,000	975,000	975,000	1,300,000	1,300,000
Furniture	20,000	20,000	20,000	20,000	40,000	40,000	60,000	60,000	80,000	80,000
Other Work Equipment	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000
Vehicles	30,000	30,000	30,000	30,000	60,000	60,000	90,000	90,000	120,000	120,000
Gross Switch Investment	750,000	850,000	1,000,000	1,400,000	2,025,000	2,275,000	3,150,000	3,650,000	4,525,000	5,025,000
Interest @9.0%	45,000	50,000	59,000	83,000	120,000	135,000	187,000	217,000	269,000	298,000
Equity @15%	38,000	43,000	51,000	71,000	103,000	116,000	161,000	186,000	231,000	256,000
Switchman (1 to 5)	75,000	75,000	75,000	75,000	150,000	150,000	225,000	225,000	300,000	300,000
Outside Plant Technician	75,000	75,000	75,000	75,000	150,000	150,000	225,000	225,000	300,000	300,000
Rent Expense	41,000	41,000	41,000	41,000	44,000	44,000	47,000	47,000	50,000	50,000
Power	25,000	25,000	25,000	25,000	30,000	30,000	35,000	35,000	40,000	40,000
Training	15,000	15,000	15,000	15,000	30,000	30,000	45,000	45,000	60,000	60,000
Travel, Other	5,000	5,000	5,000	5,000	10,000	10,000	15,000	15,000	20,000	20,000
Repairs	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000	11,000	12,000
Depreciation Expense	112,500	127,500	150,000	210,000	303,750	341,250	472,500	547,500	678,750	753,750
Property Tax	22,500	25,500	30,000	42,000	60,750	68,250	94,500	109,500	135,750	150,750
Subtotal Direct Expenses	457,000	486,000	531,000	648,000	1,008,500	1,082,500	1,516,000	1,662,000	2,095,500	2,240,500
Transport Charges (Host to Tandem)	18,000	21,000	42,000	42,000	63,000	84,000	126,000	168,000	189,000	231,000
Trunk charges (CLEC Host to ILEC Host)	36,000	42,000	84,000	84,000	126,000	168,000	252,000	336,000	378,000	462,000
COLLOCATION										
One-time fees	59,000	59,000	59,000	59,000	59,000	59,000	59,000	59,000	59,000	59,000
Non-Recurring Charges: Transport	500	500	500	500	500	500	500	500	500	500
Non-Recurring Charges: Trunk	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000
Periodically charged rates (facilities space, cable, etc.)	9,000	9,000	9,000	9,000	18,000	18,000	27,000	27,000	36,000	36,000
TOTAL INCREMENTAL EXPENSE	585,500	623,500	731,500	848,500	1,281,000	1,418,000	1,986,500	2,258,500	2,764,000	3,035,000
ANNUAL MINUTES	9,000,000	18,000,000	54,000,000	90,000,000	135,000,000	180,000,000	270,000,000	360,000,000	450,000,000	540,000,000
EXPENSE/MINUTE	$ 0.065056	$ 0.034639	$ 0.013546	$ 0.009428	$ 0.009489	$ 0.007878	$ 0.007357	$ 0.006274	$ 0.006142	$ 0.005620

Attachment III.
Operational Interface Requirements between the CLEC and ILEC

Interconnect Agreement
File Request Letter to Begin Process
Receive Draft Version of Interconnect
Distribute Draft Version to Team for Review
Negotiate Interconnect Agreement
Sign Interconnect Agreement
Determine Deposit Requirements and Arrange for Letter of Credit or Deposit
Develop Joint Grooming Plan
Interconnect Filed with State Commission

Establish Internal Service Agreements
Which Internal Agreements are Needed
Service Level Establishment

Provision and Test Interconnection Trunks
911
Local
IntraLATA Toll
InterLATA Toll
Operator Services
SS& (if separate A-Links)

Establish Usage Feeds
- Daily
- Access

Establish Pre-Order Process
- Customer Service Record
- Interface with CLEC Systems

Establish Order Process
- Loop
- Number Portability
- Directory Assistance
- Directory Services

Establish Maintenance/Trouble Process
- Trouble Ticker
- I/R Dispatch

Establish C.A.R.E Feeds
- Local
- Long Distance

Determine Switch Configuration
- For All Voice Products
- ISDN
- Frame Relay
- Voice Mail
- Intercept Recordings
- DSL

Billing
- Recording
- Transmission Format
- Audit Trail
- Local Calling Areas
- Optional Calling Plans

Provisioning Methodology
- Programing and Conversion Schedules
- Procedures for Passing Completion of Sales
- Feedback on Activation

Accounting
- Detail of Billing Units
- Reconciliation of Installed Units and Billed Units

Equal Access
- Carrier Connection
- Trunking Requirements

Reciprocal Compensation
- Definition of Local
- Measuring Traffic
- Audit Trail
- Transmit Traffic

Regulatory
- CLLI Codes
- LERG
- NXX Acquisition

911

Establish Relationship with NENA
Register and Receive NENA ID
Determine 911 Trunk Requirements
Order 911 Trunks
Identify PSAPS
Assess Need for 911 Administrator
Sign Contract with 911 Administrator
Establish Process to Receive MSAG
Determine 911 Fees to Bill

Define Ancillary Service Requirements
Specify Handling for 0+,0-
Specify Handling for BLV, BLVI

Call Testing Readiness
Develop Test Site
Create Test Form
Completed Call
Short No Answer
Long No Answer
Short Busy
Long Busy
Establish Data to Record
Calling Number
Called Number
Date
Time
Duration
Short Duration Busy
Long Duration Busy
Short Duration -No Answer
Long Duration -No Answer
Test Call Types
Local
IntraLATA Toll
InterLATA Toll
International
800/888
Operator Services
411
911
555-1212
BLV
BLVI

700
900
500
101XXXX
*66, *69 etc.
Test Trouble Reporting
Marketing Readiness
Define Available Product Line
Switched Business
PBX Solutions
Features, Custom/CLASS/Centrex
Packages
Redesign Marketing Plan
Brochures
Welcome Package
Product & Services User Guide
Find Friendly Customers for Beta

APPENDIX III

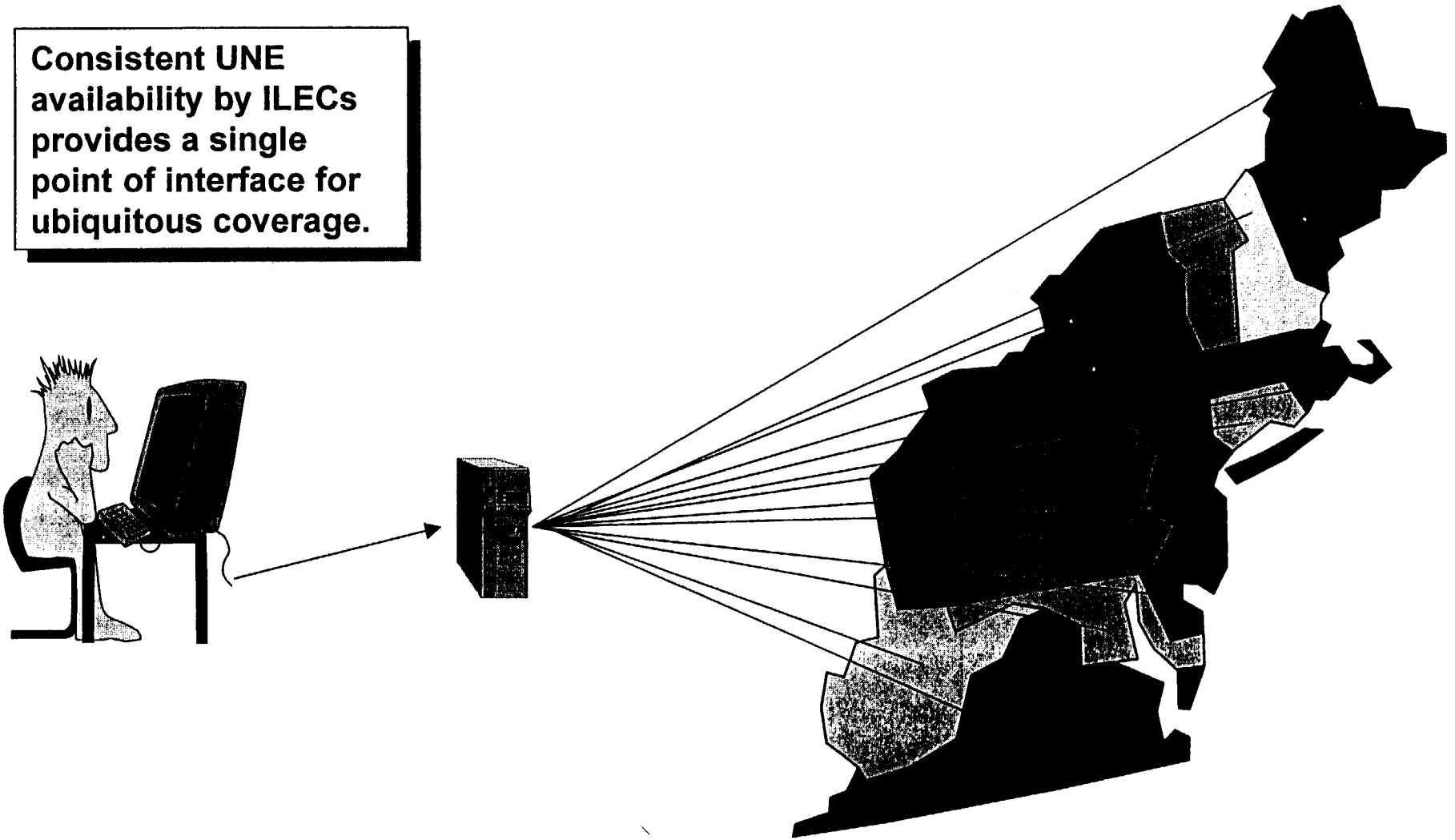
Graphic Illustration of
Additional Complexities Inherent in Switch Partitioning

Unbundled Network Elements

Lack of Consistency Will Lead To Unnecessary Complexity

Telecommunications Resellers Association

Consistent UNE availability by ILECs provides a single point of interface for ubiquitous coverage.



Bell Atlantic Region CLECs

Company	# of BTAs
Hyperion	24
ART	19
MCIWorldcom	15
AT&T	12
USN	9
NextLink	7
Winstar	7
Allegiance	5
ACSI	4
Focal	4
Covad	3
MFN	3
RCN	3
Time Warner	3
MediaOne	2
Vitts	2
Cablevision Lightpath	1
Cox Fibernet	1
Northpoint	1
Teligent	1
Total	126

- 20 CLECs have operational or planned facilities in 35 BTA's within Bell Atlantic territory.

Source: Telephony Scorekeeper: United States
The Strategis Group, 1998

Required Interfaces

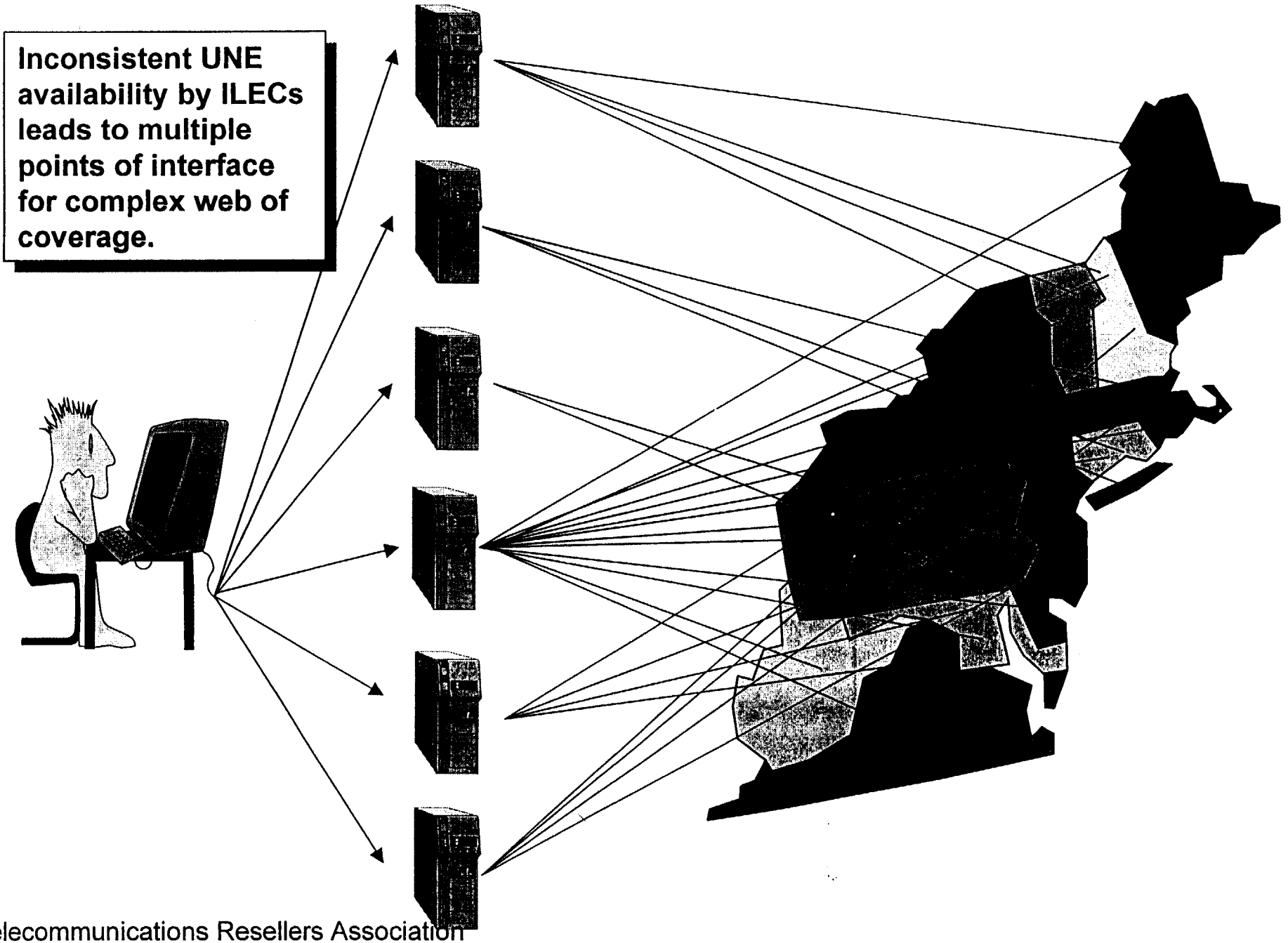
- Relationship/interface with 6 CLECs would be required to cover all 35 BTAs supported by facility based competitors.

Company/BTA	7	10	12	29	43	[redacted]	[redacted]	60	63	75	131	179	181	[redacted]	240	[redacted]	[redacted]	321	324	[redacted]	330	346	350	[redacted]	364	370	374	379	412	427	438	459	461	480	483	Total
Hyperion	1	1	1	1	1			1	1	1	1	1	1		1			1	1		1	1	1			1	1		1		1	1	1		1	24
[redacted]	1	1		1			1	1					1	1			1	1	1			1	1		1		1	1	1	1	1		1			19
[redacted]	1			1			1	1						1		1		1				1	1	1	1		1	1		1			1			15
[redacted]	1			1			1	1						1				1		1		1	1		1						1		1			12
USN	1						1	1								1		1							1				1	1				1		9
NextLink		1											1		1							1				1						1				7
Winstar				1			1											1				1	1		1							1				7
Allegiance				1			1											1				1										1				5
[redacted]				1		1												1														1				4
Focal							1											1				1										1				4
Covad						1	1											1																		3
MFN																		1				1										1				3
RCN							1											1														1				3
Time Warner	1				1													1																		3
MediaOne							1																			1										2
Vitts							1									1																				2
Cablevision Lightpath																		1																		1
Cox Fibernet																			1																	1
Northpoint							1																													1
Teligent																																1				1
	6	3	1	7	2	2	12	5	1	1	1	1	3	3	2	3	1	14	3	1	1	9	5	1	5	2	4	2	3	3	4	1	12	1	1	126

Source: Telephony Scorekeeper: United States

The Strategis Group, 1998

Inconsistent UNE availability by ILECs leads to multiple points of interface for complex web of coverage.



Affected Areas of Operation

- Pre-order activity
  - CSR Validation
  - Network Configuration
- Ordering
- Provisioning
- Account Maintenance
  - Moves, Adds & Changes
- Repair & Maintenance
- Billing

Impact on Competitors

- Increased Cost
  - Higher deployment costs
  - Lower economies of scale
- Reduced potential to serve an equally broad base of customers.
- Unnecessary complexity in delivering services to market
- Extended provisioning intervals
- Impaired support capability
  - Delayed Repair & Maintenance